REMARKS

This Amendment is filed in response to the Final Office Action mailed on March 1, 2005. All objections and rejections are respectfully traversed.

Claims 1-28, 51, 56-64, and 76-78 are pending, of which Claims 1, 56 and 76 are independent.

Applicants note with appreciation that Claim 19 was found allowable if rewritten in independent form. Claims 1-3, 5-11, 13-18, 22-27, 51, 56-64 and 76-78 were rejected under 35 U.S.C. 102(b) as anticipated by U.S. Patent No. 5,775,109 by Eacobacci Jr. et al. ("Eacobacci"). Claims 4, 20 and 28 were rejected under 35 U.S.C. 103(a) based on Eacobacci in view of U.S. Patent No. 5,551,248 to Derosier ("Derosier"). Claims 12 and 21 were rejected under 35 U.S.C. 103(a) as obvious in view of Eacobacci.

Claims 1, 4, 6, 8, 9, 10, 11, 17, 18, 21, 23 and 76 have been amended.

Briefly, the present invention teaches a method and system for managing a supply of refrigerant among a group of refrigerators by determining the operational demand of each of the refrigerators in the group based on the "particular operation that the cryogenic refrigerator is performing," and allocating accordingly. Specification, Page 4, lines 3-9.

One embodiment of the present invention, as set forth in independent Claim 1, as amended, reads:

> 1. A method for controlling distribution of refrigerant among a plurality of refrigerators comprising:
> determining an available quantity of the refrigerant;
> **determining a demand of the refrigerant** by each of the plurality of refrigerators;
> aggregating the **refrigerant demand** of the refrigerators;
> determining, for each of the refrigerators, an allocation of the refrigerant based on the availability of the refrigerant, the aggregated **refrigerant demand** and the individual **refrigerant demands** of the refrigerators, the allocation computed as a portion of the determined available quantity;
> distributing the refrigerant to the refrigerators based on the determined allocation; and
> redistributing the refrigerant over time by redetermining the allocation of the refrigerant.

(emphasis added)

Eacobacci controls each refrigerator by monitoring the refrigerator temperatures. Each refrigerator so controlled is controlled based on the temperature in relation to a setpoint. No comparison, or computation, appears to be performed based on the operation of a particular refrigerator with respect to the other refrigerators. A particular refrigerator's temperature appears to be the sole input to the setpoint comparison, as described at Col. 7, lines 13-61. Accordingly, the Eacobacci system may determine that each refrigerator is in need of helium, and therefore allow each refrigerator to attempt to draw a quantity of helium which, in aggregate for all refrigerators so controlled, exceeds the total helium available. Similarly, the Eacobacci system may determine that each refrigerator is satisfied with respect to the temperature setpoint, and permit helium to be unutilized.

The Examiner has cited a passage from Eacobacci that discusses a prior art system that demonstrates problems addressed by Eacobacci. With respect to the system described in the cited passage, no comparison, computation, or *determination* appears to be performed based on the operation of a particular refrigerator with respect to the other refrigerators. The cited passage discloses a prior art system wherein refrigerators "contest for a now-scarce supply of compressed gas" and a compressor supplies an amount of helium refrigerant based on a "refrigerator's maximum consumption (at the given temperature) multiplied by the ratio of the available supply over the present aggregate maximum consumption of all refrigerators." Eacobacci, Col. 5, lines 17-22 (emphasis added). As discussed in Eacobacci, this prior art system results in warmer refrigerators obtaining less than optimal amounts of refrigerant flow, thus preventing an optimal cooldown rate of those warmer refrigerators. Eacobacci, Col. 6, lines 3-19. This is a problem also addressed by the present invention.

Like Eacobacci, the present invention overcomes the limitations of the prior art system. The present invention measures the demand of individual refrigerators depending on that refrigerators particular operation. While the prior art system based its allocation on a given refrigerator's *maximum draw without determining the actual refrigerant demand*, the present invention *determines* the operational *demand* of a given refrigerator and prorates any allocations based on the refrigerant demand. Independent Claim 1 has been amended to clarify that refrigerant demand at the refrigerators is being determined for the determination of allocation

among the refrigerators. Support for these amendments can be found in the Specification at Page 4, lines 6-9; Page 6, lines 26-28; and throughout the application. The present application relates to controlling the system by determining the refrigerator needs and allocating the appropriate amount of refrigerant based on that need.

Information Disclosure Statement

An Information Disclosure Statement (IDS) is being filed concurrently herewith. Entry of the IDS is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By_____
F. James Coe
Registration No. 46,630
Telephone: (978) 341-0036
Facsimile: (978) 341-0136

Concord, MA 01742-9133
Dated: 8|1|05